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Adair

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(54) **AQUATIC LADDER ADAPTED FOR MARINE APPLICATIONS**

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(51) **Int. Cl.**

B63B 27/14 (2006.01)

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E06C 1/06 (2006.01)

E06C 9/06 (2006.01)

(52) **U.S. Cl.**

USPC **182/93**; 182/97; 182/194; 114/362

(58) **Field of Classification Search**

None

See application file for complete search history.

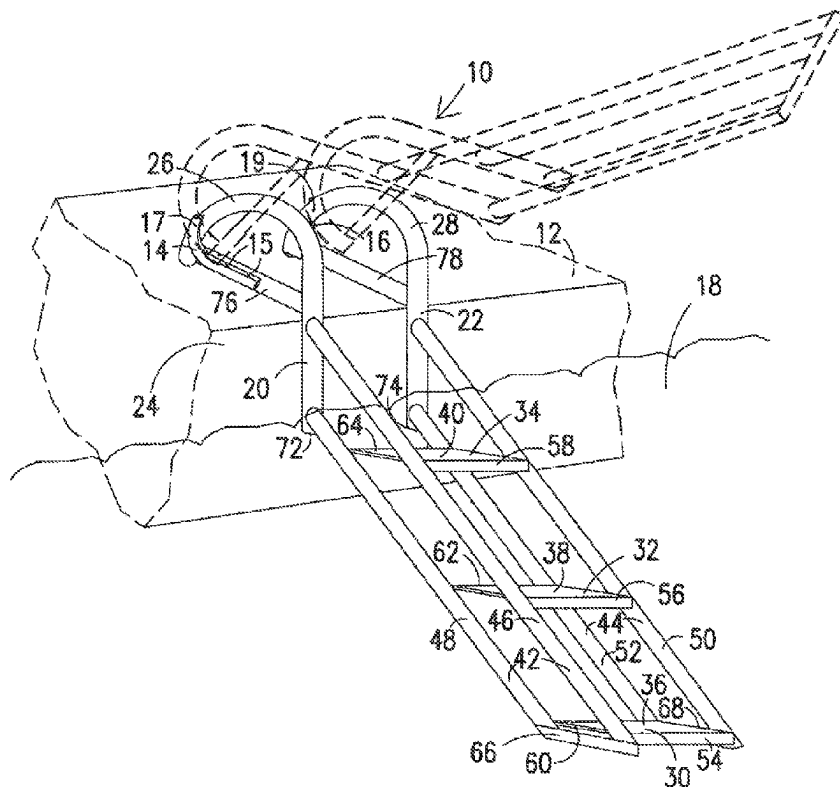
(56) **References Cited**

To view the complete listing of prior art documents cited during the proceeding for Reexamination Control Number 90/012,661, please refer to the USPTO's public Patent Application Information Retrieval (PAIR) system under the Display References tab.

Primary Examiner — Jeffrey L. Gellner

(57) **ABSTRACT**

The aquatic ladder was designed for ease of use, rather than ease of storage. It has wide, deep treads, arranged like a staircase, with side and upper railings which make it easy to enter or exit the water, even by elderly people, tired individuals, those carrying aquatic equipment, such as SCUBA gear or water skis, and, even, by pets. In the preferred embodiment, the aquatic ladder includes upper railings which each have an inverted "U" shape, and the distal end of those railings have hinged brackets for mounting the aquatic ladder to an object to be boarded. In an alternative embodiment, the aquatic ladder is mounted on a sliding rail, such that it can be raised, vertically, from the water, when it is not being used. The vertical portions of the ladder are short, relative to the overall height of the ladder whereby less material is used to manufacture the ladder, while making its shipment and storage easier. The ladder is preferably made from aluminum, although it can be made of other materials, such as steel (e.g., stainless or galvanized), fiberglass, plastic, or other composites.



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EX PARTE
REEXAMINATION CERTIFICATE
ISSUED UNDER 35 U.S.C. 307

THE PATENT IS HEREBY AMENDED AS
INDICATED BELOW.

Matter enclosed in heavy brackets [] appeared in the patent, but has been deleted and is no longer a part of the patent; matter printed in italics indicates additions made to the patent.

AS A RESULT OF REEXAMINATION, IT HAS BEEN
DETERMINED THAT:

Claim 1 is determined to be patentable as amended.

Claims 2-8, dependent on an amended claim, are determined to be patentable.

New claims 9-11 are added and determined to be patentable.

1. An aquatic ladder *for use on a dock or boat*, comprising, a pair of substantially parallel, substantially vertical spaced support members, each of said vertical spaced support members having upper and lower portions, the upper portion formed as an inverted "U" shape and terminating at a distal upper end, the lower portion terminating at a proximal lower end, the proximal lower ends extending substantially lower than the distal upper ends when the aquatic ladder is in an upright orientation *such that said lower portions of said spaced support members contact a portion of a dock or boat on which said aquatic ladder is mounted*;

a pair of spaced sloped step support members extending at an angle with respect to said vertical spaced support members, each of said sloped step support members including upper and lower ends, each said upper end being rigidly affixed, respectively, to one of the proximal lower ends of said vertical spaced support members, the lower ends of said sloped step support members being horizontally spaced away from the proximal lower ends of said vertical spaced support members, said sloped step support members being spaced from one another; and

a plurality of relatively deep and relatively wide substantially horizontal steps being mounted between said sloped step support members, wherein each lower step of said horizontal steps is displaced both vertically and horizontally further from the point where said vertical spaced support members meet said sloped step support members than any preceding one of said horizontal steps above it;

wherein said pair of sloped step support members each comprise front and rear members, said front members being spaced from said rear members, said front members being attached to the front of said horizontal steps and said rear [member] *members* being attached to the rear of said horizontal steps *and wherein said contact*

between said vertical spaced support members against a dock or boat on which said ladder is mounted limits downward movement of said vertical spaced support members, and together with the angle at which said vertical spaced support members are attached to said pair of spaced sloped step support members, determine the angle between said pair of space sloped step support members and said dock or boat on which said ladder is mounted.

9. An aquatic ladder, comprising,

a pair of substantially parallel, substantially vertical spaced support members, each of said vertical spaced support members having upper and lower portions, the upper portion formed as an inverted "U" shape and terminating at a distal upper end, the lower portion terminating at a proximal lower end, the proximal lower ends extending substantially lower than the distal upper ends when the aquatic ladder is in an upright orientation;

a pair of spaced sloped step support members extending at an angle with respect to said vertical spaced support members, each of said sloped step support members including upper and lower ends, each said upper end being rigidly affixed, respectively, to one of the proximal lower ends of said vertical spaced support members, the lower ends of said sloped step support members being horizontally spaced away from the proximal lower ends of said vertical spaced support members, said sloped step support members being spaced from one another;

a plurality of relatively deep and relatively wide substantially horizontal steps being mounted between said sloped step support members, wherein each lower step of said horizontal steps is displaced both vertically and horizontally further from the point where said vertical spaced support members meet said sloped step support members than any preceding one of said horizontal steps above it; and

attachment means which allow the ladder to be slidably attached thereto, whereby the ladder can be slid vertically into or out of the water, said attachment means being comprised of a pair of slideable means, each of which is attached to a respective one of said substantially vertical spaced support members;

wherein said pair of sloped step support members each comprise front and rear members, said front members being attached to the front of said horizontal steps and said rear members being attached to the rear of said horizontal steps.

10. The aquatic ladder of claim 9 wherein said pair of slideable attachment means comprises a pair of vertical channels.

11. The aquatic ladder of claim 5 wherein said hinged brackets do not have to be removed from either said ladder or a dock or other structure to which said hinged brackets are attached in order to remove the stepped portion of said ladder from the water.

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